

WHAT IS CLAIMED IS:

1. A spindle motor assembly comprising:  
a fixed shaft;  
a spindle hub journaled coaxially about the fixed shaft, the spindle hub having inner and outer surfaces, an enlarged thickness flange portion having a support surface for supporting a disc stack and a second surface located opposite the first surface, and a reduced thickness rotor carrying portion located adjacent the second surface of the flange portion;  
a pair of spaced apart bearings for rotatably coupling the spindle hub to the fixed shaft, each said bearing having an inner race secured to the fixed shaft and an outer race secured to the inner surface of the spindle hub;  
magnet means carried by the outer surface of the rotor carrying portion of the spindle hub, the magnet means having a plurality of poles and forming the rotor portion of the spindle motor; and  
stator means having a plurality of fixed windings for cooperating with the magnet means to rotate the spindle hub with respect to the shaft.
2. A spindle motor assembly as recited in Claim 1 further comprising a Hall effect sensor fixedly positioned adjacent the magnet means to detect passage of the poles to control commutation.
3. A spindle motor assembly as recited in Claim 2 wherein said magnet means includes an annular ring formed of a magnet material, the annular ring being magnetized to have a multiplicity of poles and each pole is magnetized to generate fields having two separate orientations.
4. A spindle motor assembly as recited in Claim 2 further comprising a base plate for mounting the spindle motor assembly to a disc drive housing, and wherein the

base plate carries the stator means and the Hall effect  
5 sensor.

5. A spindle motor assembly as recited in Claim 1  
wherein said magnet means includes:

an annual ring formed of a magnet material, the  
annular ring being magnetized to have a multiplicity of  
5 poles; and

a ferric ring secured to the outer surface of the  
rotor carrying portion of the spindle hub for carrying the  
magnetic ring.

6. A spindle motor assembly for rotating a disc  
stack within a disc drive having a drive housing, the  
spindle motor assembly comprising:

a fixed shaft fixedly coupled to the drive  
5 housing;

a spindle hub journaled coaxially about the fixed  
shaft, the spindle hub having,

inner and outer surfaces,

an enlarged thickness flange portion having  
10 a first surface for supporting the disc stack and a second  
surface opposing the first surface, the first and second  
flange surfaces forming a portion of the outer surface of  
the spindle hub, and

a reduced thickness rotor carrying portion  
15 located adjacent the second surface of the flange portion;

a pair of spaced apart bearings for rotatably  
coupling the spindle hub to the fixed shaft, each said  
bearing having an inner race secured to the fixed shaft and  
an outer race secured to the inner surface of the spindle  
20 hub;

magnet means carried by the outer surface of the  
rotor carrying portion, the magnet means having a plurality  
of poles, the magnet means forming the rotor portion of the  
spindle motor; and

25 stator means having a plurality of fixed windings

for cooperating with the magnet means to rotate the spindle hub with respect to the shaft.

7. A spindle motor as recited in Claim 6 wherein the drive housing forms a well into which the magnet means and stator means may be recessed.

8. A spindle motor assembly as recited in Claim 7 further comprising a base plate for mounting the assembly to the drive housing and wherein the shaft and the stator means are carried by the base plate.

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